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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/046,007 03/23/98 HAN

C HT98-002

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IM22/0826

EXAMINER

AHMED, S

ART UNIT

PAPER NUMBER

1746

6

DATE MAILED:

08/26/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/046,007

Applicant(s)
HAN et al.

Examiner
Shamim Ahmed

Group Art Unit
1746



☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-31 is/are pending in the application.

Of the above, claim(s) 1-20 and 29-31 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 21-28 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Specification

1. At page 19, related U.S. Patent application no. and the filing date is missing.

Election/Restriction

2. Applicant's election with traverse of the restriction between Groups I-II in Paper No.5 is acknowledged. The traversal is on the ground(s) that both the product and the method claim language are same, i.e., the method claims necessarily use the product and vice versa, and that the reasons for restriction are speculative. This is not found persuasive because burden was established by showing the two groups of invention had obtained a separate status in the art by their different classifications, not by their divergent fields of search. In addition, the product as claimed could be performed by a materially different process, such as direct deposition of layers. Restriction practice does not require anticipatory evidence.

The requirement is still deemed proper and is therefore made FINAL.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choukh et al. (U.S. Patent No. 5,753,131) in view of Ravipati et al. (U.S. Patent No. 5,739,990) and Watanabe et al. (U.S. Patent No. 5,694,275).

Choukh teaches a similar method for making a magnetoresistive device, where, the magnetoresistive (MR) layer is separated from the soft adjacent layer (SAL) by a non-magnetic layer, which is formed of dielectric material, such as alumina (Al_2O_3) [col.3, line 22-32 and figure 4).

Choukh also teaches that the photoresist pattern is done by a lift-off method(which is well known in the art) and ion beam and sputtering etch methods are used as etching method (col.3, line 32-63).

Choukh further teaches forming an anti-ferromagnetic exchange layer as a magnetic biasing layer of hard magnetic material, such as Ni-Mn alloys and the soft magnetic layer is formed of nickel-iron alloys and the thickness of the dielectric layer is about 100-300 Å (col. 3, lines 22-63).

Choukh fails to clearly teach the anti-ferromagnetic layer is the transverse magnetic biasing layer and the MR layer is formed on the substrate, not the SAL layer.

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However, Ravipati et al. disclose a MR transducer having a transverse magnetic biasing layer (84) of nickle-cobalt oxide (col.5, lines 1-col.6, lines 4).

In addition, Watanabe et al disclose a MR magnetic head having MR layer, non-magnetic spacer layer and SAL layer, in which the MR and SAL layer both are made out of the same material (Ni-Fe) with different thickness, where in the SAL layer for applying a transverse bias magnetic field to the MR layer (col. 3, lines 35- col 4, lines 10).

Since, the thickness ratio for MR and SAL layer is different, it would have been obvious to have different magnetic- moment ratios for the MR and SAL layer.

Further more, the MR and the SAL layer are made out of same material, as taught by Watanabe et al. So, it would have been obvious to interchange their position or location without varying from the present invention.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of claimed invention to combine Ravipati and Watanaba et al.'s teaching with Choukh et al's method for improved electrical biasing with low resistivity and also for high recording density.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (703) 305-1929.


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August 23, 1999


RANDY GULAKOWSKI
PRIMARY EXAMINER